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| **MATH 6**  **Planning - KDU** | | | | |
| **CORE COMPETENCIES**  **COMMUNICATION** | | **CORE COMPETENCIES**  **THINKING (CRITICAL/CREATIVE)** | | **CORE COMPETENCIES**  **(PERSONAL/SOCIAL)** |
| **CURRICULAR COMPETENCIES** | **BIG IDEA (Understand…)** | **What do we want students to DO?**  **(Activities, lessons…)** | **Content (& Elaborations)**  **(Know)** | |
| **Reasoning and analyzing**   * Use logic and patterns *(including coding)* to solve puzzles and play games * Use reasoning and logic *(making connections, using inductive and deductive reasoning, predicting, generalizing, drawing conclusions through experiences)* to explore, analyze, and apply mathematical ideas * Estimate reasonably *(estimating using referents, approximation, and rounding strategies (e.g., the distance to the stop sign is approximately 1 km, the width of my finger is about 1 cm)* * Demonstrate and apply *(extending whole-number strategies to decimals; working toward developing fluent and flexible thinking about number)* mental math strategies * Use tools or technology to explore and create patterns and relationships, and test conjectures * Model *(acting it out, using concrete materials (e.g., manipulatives), drawing pictures or diagrams, building, programming)* mathematics in contextualized experiences   **Understanding and solving**   * Apply multiple strategies *(includes familiar, personal, and from other cultures)*  to solve problems in both abstract and contextualized situations * Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving * Visualize to explore mathematical concepts * Engage in problem-solving experiences that are connected *(in daily activities, local and traditional practices, the environment, popular media and news events, cross-curricular integration; Patterns are important in First Peoples technology, architecture, and artwork.; Have students pose and solve problems or ask questions connected to place, stories, and cultural practices.)* to place, story, and cultural practices relevant to the local First Peoples communities, the local community and other cultures   **Communicating and representing**   * Use mathematical vocabulary and language to contribute to mathematical discussions * Explain and justify *(* *using mathematical arguments)* mathematical ideas and decisions * Communicate *(* *concretely, pictorially, symbolically, and by using spoken or written language to express, describe, explain, justify, and apply mathematical ideas; may use technology such as screencasting apps, digital photos)* mathematical thinking in many ways * Represent mathematical ideas in concrete, pictorial, and symbolic forms   **Connecting and reflecting**   * Reflect (sharing the mathematical thinking of self and others, including evaluating strategies and solutions, extending, and posing new problems and questions) on mathematical thinking * Connect mathematical concepts to each other and to other areas and personal interests (to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, the environment, popular media and news events, social justice, and cross-curricular integration) * Incorporate (how ovoid has different look to represent different animal parts; invite local First Peoples Elders and knowledge keepers to share their knowledge.) First Peoples worldviews and perspectives to make connections (Bishop’s cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm\_files/abishop.htm); aboriginaleducation.ca; Teaching Mathematics in a First Nations Context,; FNESC fnesc.ca/k-7/) to mathematical concepts | Mixed numbers and decimal numbers represent quantities that can be decomposed into parts and wholes.  Computational fluency and flexibility with numbers extend to operations with whole numbers and decimals.  Linear relations can be identified and represented using expressions with variables and line graphs and can be used to form generalizations. | *Questions to support inquiry with students:*   * In how many ways can you represent the number \_\_\_? * What are the connections between fractions, mixed numbers, and decimal numbers? * How are mixed numbers and decimal numbers alike? Different? * When we are working with decimal numbers, what is the relationship between addition and subtraction? * When we are working with decimal numbers, what is the relationship between multiplication and division? * When we are working with decimal numbers, what is the relationship between addition and multiplication? * When we are working with decimal numbers, what is the relationship between subtraction and division? * What is a linear relationship? * How do linear expressions and line graphs represent linear relations? * What factors can change or alter a linear relationship? | * Small to large numbers *(place value understanding from thousandths to billions, operations with thousandths to billions; numbers used in science, medicine, technology, and media; compare, order, estimate) )* (thousandths to billions) * Multiplication and division facts to 100 *(mental math strategies (e.g., the double-double strategy to multiply 23 x 4))* [developing computational fluency] * Order of operations with whole numbers *(includes use of brackets, but excludes exponents; quotients can be rational numbers)* * Factors and multiples, *(prime and composite numbers, divisibility rules, factor trees, prime factor phrase (e.g., 300 = 22 x 3 x 52); using graphic organizers (e.g., Venn diagrams) to compare numbers for common factors and common multiples)* greatest common factor & least common multiple * Improper fractions *(using benchmarks, number line, and common denominators to compare and order, including whole numbers; using pattern blocks, Cuisenaire Rods, fraction strips, fraction circles, grids; birchbark biting)* and mixed numbers * Introduction to ratios *(comparing numbers, comparing quantities, equivalent ratios; part-to-part ratios and part-to-whole ratios)* * Whole number percents *(* *using base 10 blocks, geoboard, 10x10 grid to represent whole number percents; finding missing part (whole or percentage); 50% = 1/2 = 0.5 = 50:100)* and percentage discounts * Multiplication and division of decimals *(* *0.125 x 3 or 7.2 ÷ 9; using base 10 block array; birchbark biting)* * increasing & decreasing patterns *(limited to discrete points in the first quadrant; visual patterning (e.g., colour tiles); Take 3 add 2 each time, 2n + 1, and 1 more than twice a number all describe the pattern 3, 5, 7, …; graphing data on First Peoples language loss, effects of language intervention)* , using expressions, tables & graphs   as functional relationships   * one-step equations *(* *preservation of equality (e.g., using a balance, algebra tiles); 3x = 12, x + 5 = 11)* with whole-number coefficients & solutions * Financial literacy *(informed decision making on saving and purchasing; How many weeks of allowance will it take to buy a bicycle?)*  – simple budgeting & consumer math | |
| **Evidence of Experience (Show)** | | | |
| **BIG IDEA (Understand…)** | **What do we want students to DO?**  **(Activities, lessons…)** | **Content (& Elaborations)**  **(Know)** | |
| Properties of objects and shapes can be described, measured, and compared using volume, area, perimeter, and angles. | *Questions to support inquiry with students:*   * How are the areas of triangles, parallelogram, and trapezoids interrelated? * What factors are considered when selecting a viable referent in measurement? | * Perimeter *(A complex shape is a group of shapes with no holes (e.g., use colour tiles, pattern blocks, tangrams))*  of complex shapes * Area *(* *grid paper explorations; deriving formulas; making connections between area of parallelogram and area of rectangle; birchbark biting)* of triangles, parallelograms and trapezoids * Angle *(straight, acute, right, obtuse, reflex; constructing and identifying; include examples from local environment; estimating using 45°, 90°, and 180° as reference angles; angles of polygons; Small Number stories: Small Number and the Skateboard Park (mathcatcher.irmacs.sfu.ca/stories)* measurement and classification * volume and capacity *(* *using cubes to build 3D objects and determine their volume; referents and relationships between units (e.g., cm3, m3, mL, L); the number of coffee mugs that hold a litre; berry baskets, seaweed drying)* * Triangles *(scalene, isosceles, equilateral,*  *right, acute, obtuse; classified regardless of orientation)* * Combinations of transformations *(plotting points on Cartesian plane using whole-number ordered pairs; translation(s), rotation(s), and/or reflection(s) on a single 2D shape;*  *limited to first quadrant; transforming, drawing, and describing image; Use shapes in First Peoples art to integrate printmaking (e.g., Inuit, Northwest coastal First Nations, frieze work)* (mathcentral.uregina.ca/RR/database/RR.09.01 mcdonald1/) | |
| **Evidence of Experience (Show)** | | | |
| **BIG IDEA (Understand…)** | **What do we want students to DO?**  **(Activities, lessons…)** | **Content (& Elaborations)**  **(Know)** | |
| Data *(Data and Probability: Analyzing data and chance enables us to compare and interpret)* from the results of an experiment can be used to predict the theoretical probability of an event and to compare and interpret. | *Questions to support inquiry with students:*   * What is the relationship between theoretical and experimental probability? * What informs our predictions? * What factors would influence the theoretical probability of an experiment? | * Line graphs *(table of values, data set, create and interpret a line graph from a given set of data)* * Single-outcomeprobability *(* *single-outcome probability events (e.g., spin a spinner, roll a die, toss a coin); listing all possible outcomes to determine theoretical probability; comparing experimental results with theoretical expectation; Lahal stick games)* , both theoretical and experimental | |
| **Evidence of Experience (Show)** | | | |